

REMARKS/ARGUMENTS

STATUS OF CLAIMS

In response to the Office Action dated March 18, 2008, claim 1 has been amended. Claims 1-7 are now pending in this application. No new matter has been added.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 102

Claims 1-7 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Kawakita (Japanese Patent Publication No. 2002-096344).

The rejections are respectfully traversed.

Kawakita discloses steps of:

comparing an optical characteristic (measured value) of a temporary lens and an optimal characteristic;

determining minute changing quantity in high order part as an adjustment Quantity by comparing a deviation of aspherical aberration value deviated from the optimal characteristic with a table, in which a relationship between a minute changing quantity in high order Part among corresponding aspherical surface constants for designating aspherical surface conditions and a deviation of aspherical aberration values is predetermined,

designing a final molding die after determining a new form design value by adding the adjustment quantity to the aspherical constant of condition designating the aspherical surface of temporary molding die.

Meanwhile, the present invention comprises the steps of:

measuring a wavefront aberration of a molded first temporary optical device;

calculating a correction wavefront aberration compensating for the wavefront aberration;

designing by using at least the plurality of optical parameters, a second temporary optical device for optimizing a form so as to exhibit the correction wavefront aberration; and

designing, according to the optimized form of the second temporary optical device, a normal molding die for molding a normal optical device.

As noted in the previous Response, it is believed at least two elements among those elements related to claim 1 are not disclosed or suggested in Kawakita. That is, in Kawakita, there is no disclosure or suggestion concerning the steps of (1) “calculating a correction wavefront aberration compensating for the wavefront aberration (Paragraph 0027)” and (2) “designing by using at least the plurality of optical parameters a second temporary optical device for optimizing a form so as to exhibit the correction wavefront aberration (Paragraph [0033]).”

With respect to (1), it is described in paragraph [0027] of Kawakita that “a deviation from an optimal optical characteristic is compared to the table T predetermined by an optical simulation and an adjustment quantity for a molding die is determined. Table T shows a relationship between a changing value (ΔA_4) changed an aspherical constant A_i minutely with respect to the above-mentioned condition 1(2) and a changing quantity of the aspherical aberration value.” In the method of Kawakita, a correction wavefront aberration compensating for the wavefront aberration (a form of correction wavefront aberration shown in FIG. 1(4) of the present application) is **NOT** calculated.

In the Response to Arguments section, on page 4 of the present Office Action, the Examiner disagrees with this assertion, maintaining that the values of the table have been calculated beforehand using a formula prescribing an aspheric surface and the variation quantity of the aspheric surface aberration value. The Examiner further maintains that the correction value determined from the calculated table needs to be added to or subtracted from the initial value (therefore calculated).

However, even if the values of the table have been calculated beforehand using a formula prescribing an aspheric surface and the variation quantity of the aspheric surface aberration value, and the correction value determined from the calculated table is added to or subtracted from the initial value, this is not a calculation of a *correction wavefront aberration compensating for the wavefront aberration*.

With respect to (2), paragraph [0033] of Kawakita only describes that, according to thus designed molding die, the step returns to the step S2 and molding of an objective lens 1 is performed. Designing a second temporary optical device, as required by independent claim 1, is substantially different from *determining changing quantity* of aspherical constant as an adjustment quantity by referring to a table, as disclosed in Kawakita. Furthermore, Kawakita has no disclosure or suggestion of designing, by *using at least the plurality of optical parameters*, a second temporary optical device for optimizing a form so as to exhibit the correction wavefront aberration of the invention.

In addition, paragraphs [0030] and [0031] of Kawakita describe that an adjustment quantity calculated from the table is divided into an upper mold and a lower mold, and is added to the conditional expression 1(2). That is to say, in the method of Kawakita, *a correction quantity for mold is directly determined by referring to the table*, which is totally different from the method of the present application.

In the Response to Arguments section, on page 4 of the present Office Action, The Examiner disagrees with this assertion, maintaining that “Applicant neither claims changing a plurality of optical parameters nor calculating a plurality of optical parameters, rather, Applicant claims designing using a plurality of optical parameters. Kawakita teaches designing a second

mold based on a plurality of optical properties, optical molds are not designed solely on wavefront aberration, but are designed based on a plurality of geometric and optical properties such as refractive index. Kawakita discussed other properties used to fabricate lenses via a mold in Paragraph 0010.”

However, as noted above, independent claim 1 requires “designing by using at least the plurality of optical parameters a second temporary optical device for optimizing a form so as to exhibit the correction wavefront aberration”. That is, the same plurality of optical parameters used for designing a molding die for molding an optical device having a desirable form optimized so as to yield a desirable wavefront aberration are used in designing (anew) the second temporary optical device for optimizing a form so as to exhibit the correction wavefront aberration.

In Kawakita, *a correction value for mold is calculated from the measured value* of temporary optical device. In contrast, in the present application, a (second temporary) optical device is newly designed. In Kawakita, a predetermined table is used. In contrast, in the present application, designing anew is performed. In Kawakita, a parameter for adjustment is limited to constants of high degree part among aspherical constants. In contrast, in the present application, all the kinds of design parameters may be used.

It is noted that in both the present application and Kawakita, a temporary optical device is made by using a temporary molding die and a characteristic of thus made optical device is measured. However, the steps thereafter are totally different from each other.

To more clearly delineate that two separate design steps are present, independent claim 1 is amended to delineate, *inter alia*:

...
designing by using at least the plurality of optical parameters, a temporary optical device for optimizing a form so as to exhibit the desirable wavefront aberration;

making, according to the optimized form of the optical device, a temporary molding die for molding the optical device;

...
designing by using at least the plurality of optical parameters a second temporary optical device for optimizing *the* form so as to exhibit the correction wavefront aberration; and ...

Since Kawakita does not disclose or suggest designing by using at least the plurality of optical parameters a second temporary optical device for optimizing the form so as to exhibit the correction wavefront aberration, claims 1-7, as amended, are patentable over Kawakita.

CONCLUSION

In view of the above, Applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Edward J. Wise (Reg. No. 34,523) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

Date: **JUN 16 2008**

Respectfully submitted,

By 

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